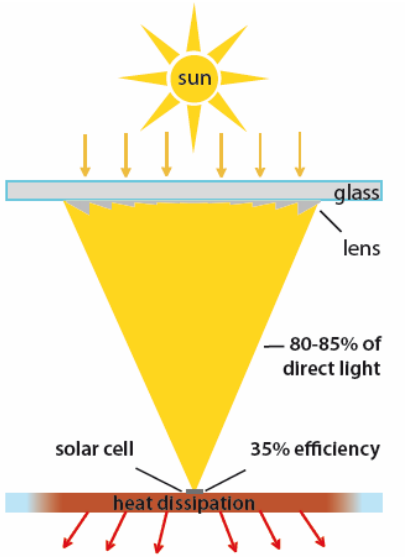
1.What is Sol*Con™ technology?

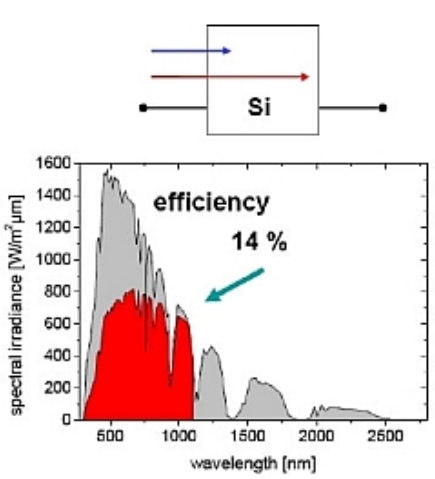
Sol*Con™ technology utilizes Fresnel-lenses to concentrate the sunlight by approx. 760 times onto 2x2mm² high performance solar cells. These high performance cells - especially built for high irradiation - transform the light efficiently into electrical energy. This offers substantial cost savings due to reduced material consumption compared to conventional monocrystalline silicon cells.



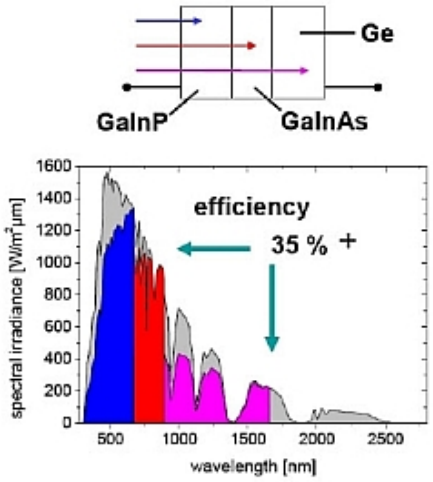
2. Why is Sol*Con™ more efficient than conventional PV technology?

The STC-60V2 series modules consist of 144 lenses. A 2x2mm² III/V solar cell is positioned under each of the lenses. By using stacked cells with multiple III/V-semi-conductor layers a significantly more broad fraction of the sun irradiation can be transformed into electrical energy. Conventional solar cells made of silicon are not able to utilize the whole spectrum of sun irradiation for the transformation into energy.

silicon cells



triple-junction cells



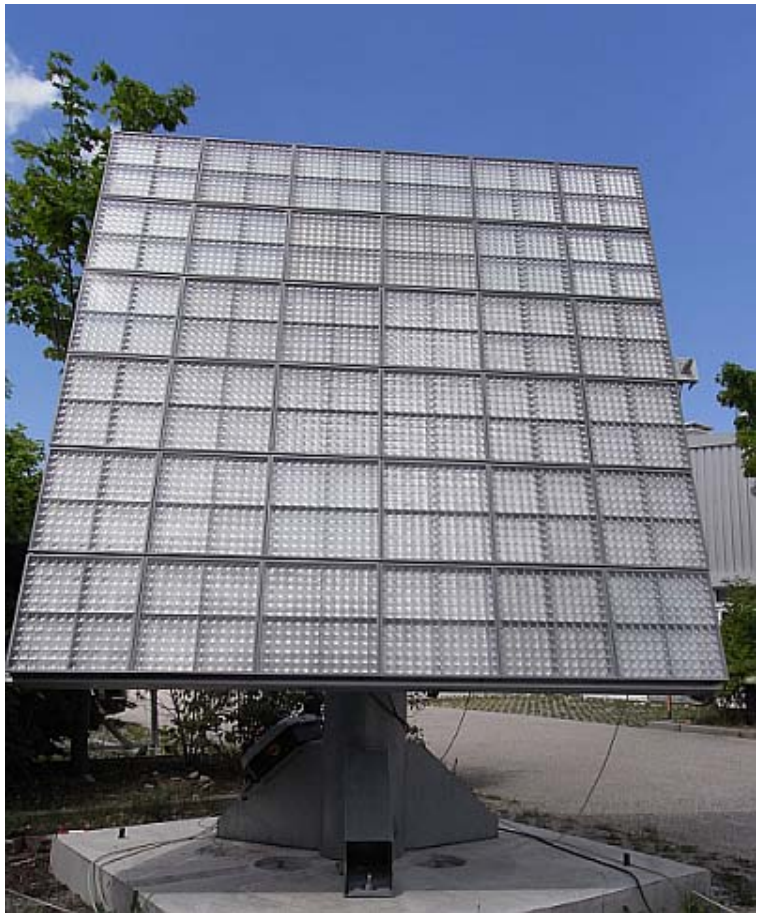
Source: „Stand und Perspektiven der Photovoltaik“
Stefan Glunz, Fraunhofer-Institut für Solare Energiesysteme Freiburg

3. What is the advantage of Sol*Con™?

By concentration of sunlight the efficiency is significantly increased, because a higher output can be achieved by an equal surface area of modules. Furthermore the utilization of smaller and more effective III-V cells in contrast to regular silicon cells keeps the Sol*Con™ system highly independent from the varying market price for semiconductor materials.

4. What are the requirements of the Sol*Con™ technology? The Sol*Con™ technology needs direct sun irradiation for the benefit of maximum output. A biaxial tracker system aligns the Sol*Con™ solar modules in an ideal position facing the sun, calculated with astronomical data and controlled by a light sensor. Tracking systems have proven to increase the efficiency of PV systems by at least 10% - 20%, depending on the number of axes.

3. What is the advantage of Sol*Con™?



Test installation of Tracker with Sol*Con™ Modules
in Aschheim/Munich

4. Are trackers fully funktionable despite of heavy winds?

Yes, tracking systems can also be used during heavy winds and are protected by special control devices (e. g. data of anemometer). The trackers also have a big ground platform, which can be fixed with reliable screw-anchors independently from soil conditions.

Does the use of trackers minimize the yield of an installation?

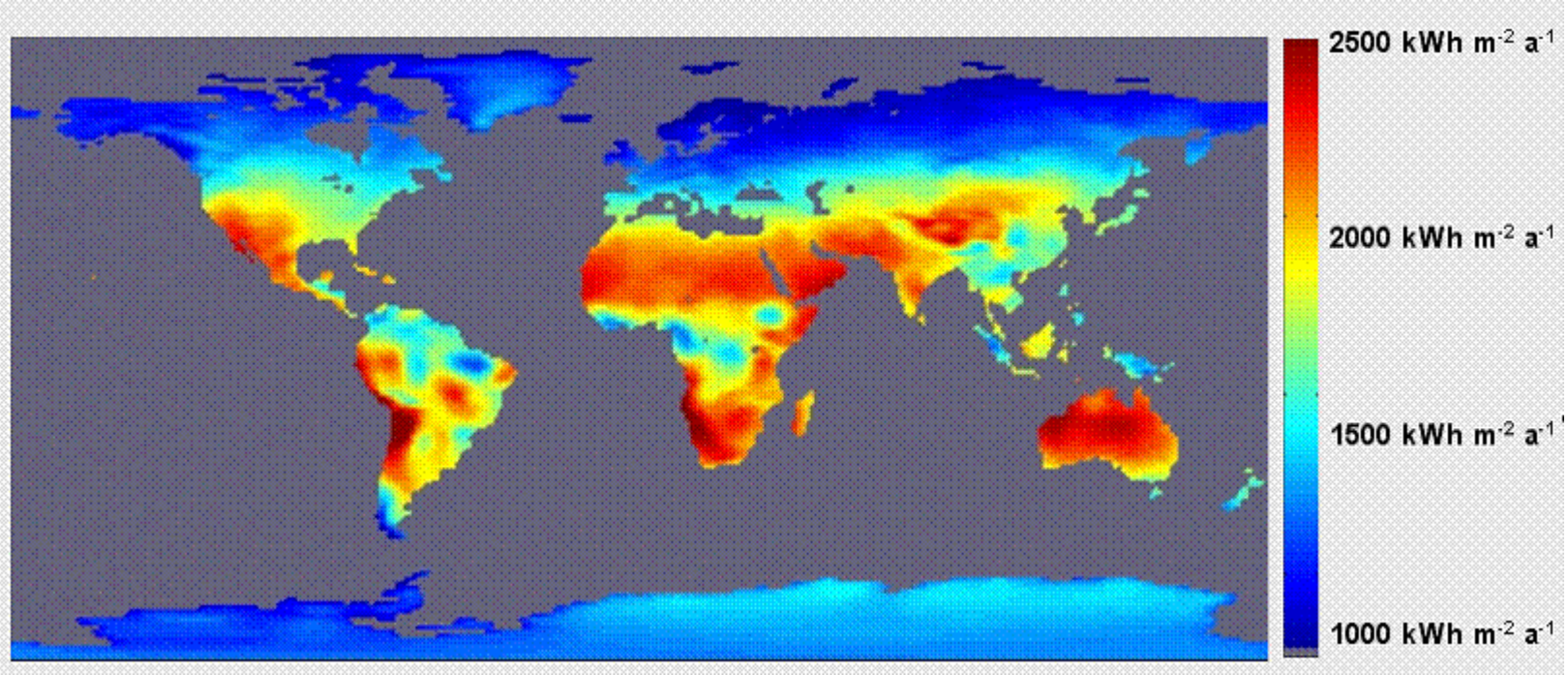
Tracking systems have stood the test of time for increasing the efficiency of conventional PV installations. The energy consumption of the tracker drivers is fairly low and therefore is manifold compensated by the high yiels of Sol*Con™ technology.
In brief: tracking systems do not decrease the yield, they rather increase the yield.

How long is the lifetime of modules compared to conventional PV modules?

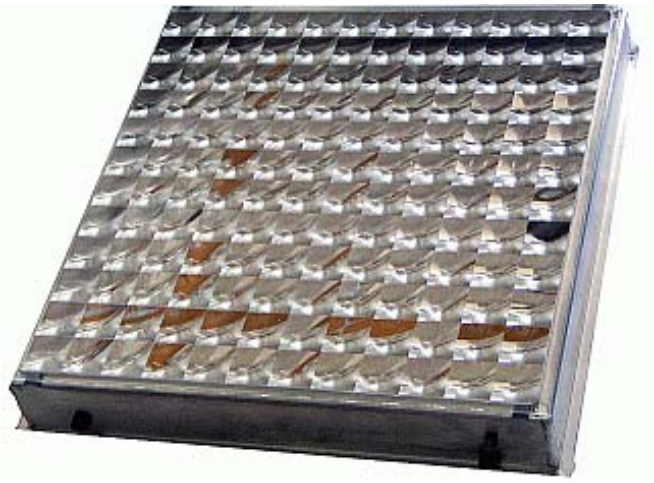
Comparable to conventional solar modules a lifetime of approx. 20 years is calculated and a similar decrease in yield is expected resulting in approx. 80% of yield after 20 years.

5. What is the application area of Sol*Con™ ?

The Sol*Con™ technology is especially applicable in sun-rich areas like Spain, Southern Italy and Greece for example, as well as other countries with a high level of direct sun irradiation of more than 1,650 kWh/m²/annually (so-called sunbelt-regions).



6. The Sol*Con™ STC-60V2 Module



Size:	50.8 cm x 50.8 cm x 7.8 cm
Active Area:	48 cm x 48 cm
Efficiency:	25.3%
Max. output:	56 Watts
Cell Type:	Triple-junction

Optics: Fresnel-lens 40 x 40 mm with 385 x geometric concentration.

The module consists of 144 solar cells.

Optimized cells will allow efficiencies of more than 28%.

7. Availability of the Modules?

The coherent CPV development concept was a deciding criterion for the election of SolarTec International AG as industrial partner by the EU-development consortium “APOLLON”.

Within this EU-project, and together with renowned partners, SolarTec International AG continuously leads CPV technology towards mass-production.

8. Future goal

Our future goal: Solar modules with over 28% efficiency. With its partners SolarTec International AG intensively pursues the advancement of solar cells, modules & the entire system under the conditions of large scale production.
International specialists assume that modern III-V solar cells have a very high potential, as the production is carried out with procedures similar to those in LED production.

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WWW.SOLARTEC-AG.COM CREATING VALUE FOR A LIVING PLANET.

Mail:

development@solartec-ag.com

production@solartec-ag.com